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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Shigekazu Orita et al.	Group Art Unit: 1771
Serial No:	09/896,058	Examiner: Torres Velazquez, N.L.
Filed:	June 29, 2001	Dated: December 11, 2003
For:	**ELECTROMAGNETIC WAVE SHIEDLING MATERIAL**	

Commissioner for Patents
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DECLARATION

I, Shigekazu Orita, do hereby declare:

1. I am one of the joint inventors of the invention being claimed in the above-identified patent application;

2. I have read and understand the Office Action mailed September 29, 2003 by the Patent and Trademark Office in the above-identified application and the art being applied therein, namely JP 2-82696 to Oike et al. and U.S. Pat. No. 5,589,245 to Roell (hereinafter referred to as "Oike et al." and "Roell"). In this regard, I have read and fully understand the Japanese language text of Oike et al., a copy of which is appended hereto;

3. The present invention, which can be produced by a relatively small number of processing steps, provides an improved electromagnetic wave shielding property, flexibility, and air permeability. The amount of cutting debris generated at the time of

cutting is reduced, along with separation of coating metal. Shielding improves while compressive stress is reduced;

4. Referring to preferred embodiments of the invention illustrated in the drawings of the present application, these advantages are explicitly attained by an electromagnetic wave shielding material including a fibrous structure base material and a conductive metal layer. The fibrous structure base material is a three-dimensionally knitted base material including an upper ground structure 1, a lower ground structure 1 and interconnecting thread 2 interconnecting the upper ground structure and the lower ground structure 1, 1. The conductive metal layer has been obtained by subjecting the three-dimensionally knitted base material to electroless plating with at least one conductive metal. Electroless plating, described on page 15 and in Examples 1-3 of the present application, is a liquid phase plating. When the three-dimensionally knitted fabric is subjected to electroless plating, all of the yarns constituting the fabric are uniformly metallized and the space between adjacent yarns remain unchanged, with air permeability of the fabric being maintained;

5. In particular, one of the important advantages of the present invention is reducing the amount of cutting debris generated at the time of cutting. This is attained by alternately arranging portions of the ground structure having the connection thread 2 and portions 3 not having the connection thread therebetween in the well direction and/or the course direction of the knitted base material. The three-dimensionally knitted base material thus-obtained is then subjected to electroless plating, with the metallized fabric thus obtained being cut at the portion 3 not having the connection thread 2 to obtain a gasket for shielding electromagnetic wave;

6. The advantages provided by the present invention have been substantiated by the comparative testing presented in Table 1 of the present application. This comparative testing has been carried out under my direction and control. Referring to these comparative test results, the improved electromagnetic wave shielding property and reduced

stress, metal coating separation, and cutting debris were attained with the inventive material. Oike et al. and Roell fail to suggest the features of the inventive electromagnetic wave shielding material and accompanying advantages, for the following reasons;

7. Oike et al. do not disclose electroless plating. Roell contains no suggestion about metal plating any of his layers;

8. More particularly, Oike et al. form two independent metal layers 2 on both surfaces of a non-conductive base material 1. Thus, Oike et al. neither disclose nor suggest a three-dimensionally knitted base material composed of an upper ground structure, a lower ground structure and interconnecting thread. Vacuum deposition, sputtering and ion-plating are exemplified together with the typical use of a metal foil. As acknowledged by the Examiner, Oike et al. disclose a metal thin film laminate structure for electromagnetic wave shielding. However, the inventive fabric is not a laminate (which has at least one planar metal film). In fact, as shown in Figures 1-3 of Oike et al., the Oike et al. product must have a non-conductive base layer 1 as a core layer in the final product and conductive metal layers 2,2 on the respective surfaces of the core layer 1. The core layer 1 of the Oike et al. is not conductive and thus conductivity is exhibited in horizontal directions only. Contrary thereto, the product of the present invention exhibits conductivity in all (360°) directions. This provides an extremely effective electromagnetic wave shielding gasket. The inventive fabric comprises various yarns individually coated with metal by electroless plating, maintaining air permeability;

9. Even if Oike et al. and Roell are combined, the inventive structure is still not suggested because such a combined teaching would only result, at most, in a knit fabric having a nonconductive core layer. In fact, if a three dimensional knit fabric is subjected to a vacuum vapor deposition, sputtering and ion-plating, most of the metal would simply be deposited on the surface of the fabric and not deposited onto the respective yarns present within the fabric; and

10. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further these statements are made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and such willful false statement may jeopardize the validity of the application or any patent issued thereon.

Jan. 21, 2004
Date

Shigekazu Orita
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